

RESPONSIVENESS SUMMARY

PROPOSED ACTION MEMORANDUM

HOT SPOT REMOVAL

Rocky Flats Environmental Technology Site
(Operable Unit No 1)

U S DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

September 1994

ADMINISTRATIVE RECORD

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LIST OF ACRONYMS

ARA	Accelerated Response Action
ARAR	Applicable or Relevant and Appropriate Requirement
CDH	Colorado Department of Health
CHWA	Colorado Hazardous Waste Act
DOE	Department of Energy
EPA	U S Environmental Protection Agency
FIDLER	Field Instrument for the Detection of Low Energy
HPGe	High Purity Germanium
IAG	Inter Agency Agreement
NTS	Nevada Test Site
PAM	Proposed Action Memorandum
PPCD	Plan for Prevention of Contaminant Dispersion

SECTION 1

INTRODUCTION

On 15 July 1994 the Department of Energy (DOE) released the Draft Proposed Action Memorandum (PAM) — Hot Spot Removal Rocky Flats Environmental Technology Site, Operable Unit No 1 for review and comment. The document was submitted to the Environmental Protection Agency Region VIII (EPA) and the Colorado Department of Health (CDH) and was made available to the public. This document is DOE's response to comments that were received during the 30-day comment period. Although there were no public comments on the document, EPA and CDH did submit comments, and these comments are addressed in Sections 2 and 3 respectively. Pursuant to these comments, the PAM has been revised and finalized (Final Proposed Action Memorandum — Hot Spot Removal, September, 1994).

The proposed hot spot removal is the excavation, containerization, and storage of radionuclide contaminated soils present at discrete locations within Operable Unit No. 1 at the Rocky Flats Environmental Technology Site. The hot spot removal is an Accelerated Response Action (ARA) as defined in the proposed language to modify the current Inter Agency Agreement, i.e., a remedial response action that all parties (DOE, EPA, and CDH) agree is necessary and appropriate to mitigate a threat or potential threat to public health or environment, and can be implemented in six months. The PAM is the primary document used by DOE in making its decision to undertake the action, and therefore substantiates the need for the action and the selected cleanup method.

SECTION 2

RESPONSES TO EPA'S COMMENTS

MAJOR CONCERNS

Comment No. 1

Cost It was assumed that a technologically simple and small scale removal such as this would also be very inexpensive but surprisingly DOE has estimated that the project will cost \$390 000 not including possible treatment storage and disposal costs This cost estimate is only divided into two broad categories in the draft PAM Planning and Management \$180 000 and Construction and Contingency \$210 000 These figures must be presented in much more detail in the PAM showing exactly why it costs so much to perform this project As proposed this is definitely not a cost effective solution to the health risks posed by these hot spots

Response to Comment No. 1

DOE appreciates EPA's (and CDH's) concern over the apparent high cost of the project. The cost of conducting work at a DOE weapons installation, particularly work that involves the handling of radioactive material, is necessarily more expensive than at other sites. Documentation, quality assurance, cost accounting, and radiological protection requirements unique to DOE installations add additional costs to those associated with the fundamental project activities. As requested, DOE will provide additional cost detail to the PAM (e.g., mobilization, excavation, waste transfer to storage, etc.). Also, the cost associated with waste characterization for shipment to and disposal at Envirocare (>\$150 000) will be deleted because the scope of this ARA does not include treatment and/or disposal of the containerized soils. Regardless, we note that cost is not a criteria for selection of an EPA time-critical removal action, and presentation of cost is not required for a proposed ARA per the draft language to modify the current IAG. References to the action being cost effective will be deleted in the Final PAM.

Comment No. 2

Threats to Public Health The threats to public health presented in this document are taken directly from the Final OU 1 RFI/RI Report (June 1994) Nevertheless this document states that a carcinogenic risk of 1.1×10^{-4} (for a current on site worker) exceeds the acceptable range but in the RI Report DOE states that the same risk is within the acceptable range Contradictory statements such as these seriously undermine the veracity of DOE documents and corrections must be made to one or both of these documents so that DOE's conclusions are consistent and believable

The risk cited above is driven by plutonium and americium in surface soils which were detected at significantly elevated activities in only one of the four hot spots discussed in the document Risks from the uranium hot spots must also be weighed Additionally although contaminant migration via surface water runoff is a consideration this document ignores several factors that have limited this migration from occurring since the contaminants were released to the environment some 25 years ago In general Section 3.1 provides a simplistic and somewhat distorted presentation of the risks to current workers and to the public and it should be rewritten to present a more realistic characterization of the precise threat to public health that would be the basis for taking an action

Response to Comment No. 2

Estimated risk values were taken directly from the RFI/RI Report The exposure scenarios were developed in consultation with EPA and CDH The exposure algorithms and risk calculations are in accordance with EPA and other relevant guidance, and the risk assessment has been approved by EPA and CDH In the context of an EPA style risk assessment the risks should be considered neither distorted nor unrealistic Although a more realistic risk assessment specific to the hot spots could be conducted and possibly show that none of the hot spots need be removed it is DOE's opinion all risk estimates aside that the presence of plutonium in surface soils at activities over 10,000 times background is additional justification for the action Public perception is an important factor in cleanup at the Rocky Flats Environmental Technology

Site and the potential negative public perception of plutonium present in surface soils at these activities, with the possibility of plutonium migration due to erosion are considerations in conducting this ARA

With respect to uranium the RFI/RI risk assessment indicates the carcinogenic risk posed by the presence of the uranium hot spots is 2 to 3 orders of magnitude less than for the plutonium hot spot. On the basis of risks, removal of the uranium hot spots can not be justified. However, the uranium activities in the hot spots are 100 to 1 000 times background. Again the potential negative public perception of leaving the uranium hot spots together with the practicality of removing these hot spots which are small in number and size, while mobilized to remove the plutonium hot spot is the rationale for their inclusion in this ARA.

We presume the factors that have limited the migration of plutonium from occurring since it was released to the environment some 25 years ago are the construction of the South Interceptor Ditch and Pond C 2. Although these runoff control features will mitigate off site plutonium migration via surface water, they do not address the spread of contamination upstream of Pond C 2.

Lastly numerical roundoff is the reason the worker risk was claimed as being within the acceptable range in the RFI/RI report and indeed should be considered an acceptable public health risk. Nevertheless the exact risk value actually exceeds the acceptable range and this will be so stated in the Final PAM without reference to its acceptability. In other words, we simply wish to convey the marginal acceptability of the risk estimate.

Comment No. 3

Screening of Options Option 3 is described as emplacing caps over the hot spots to prevent human exposure and reduce the potential for contaminant migration. In Section 5.2.1.3 this option is eliminated from further consideration on the basis that it does not provide a permanent remedy and that it may be inconsistent with an as yet undetermined final remedy for OU 1. This is not an appropriate basis for elimination since the remedy chosen for this response action need not be permanent and it is unlikely that capping

would be inconsistent with the final remedy chosen. Actually capping might be the most cost effective and reasonable option for a number of reasons: no sampling would be required and therefore no laboratory analytical or validation costs, no excavation costs and less overall project management costs. Finally, it would very likely allow the hot spots to be incorporated with the final remedy for the much greater volume of OU 1 and 2 surficial soils that are contaminated with the same radionuclides at minimal added cost. Therefore, DOE must further evaluate a capping action in the revised PAM.

Response to Comment No. 3

It is DOE's opinion that capping is not consistent with the final remedy for OU1. The RFI/RI risk assessment indicates that the risks posed by surficial plutonium/americium contamination not associated with the hot spots is acceptable. Therefore, remediation of these soils is not required as long as the hot spots are removed. In this context, removal of the hot spots represents waste minimization as their presence drives the risks posed by all surface soils to unacceptable levels. Furthermore, capping requires long term maintenance and affords little long term protection of the public health.

DOE has chosen to not further evaluate the capping option. As suggested by CDH (see CDH General Comment No. 5) the proposed action will be presented singularly as a presumptive remedy. The draft language to modify the existing IAG does not require an alternative analysis for the PAM nor does EPA guidance regarding an Action Memorandum for a time-critical removal action.

Comment No. 4

Field Detection Limits. The procedure for excavation of contaminated soils outlined in this document is directly tied to the use of field radiation detectors. Therefore, it is necessary to state the minimum detectable activity in picoCuries per gram for each radionuclide of interest according to the specific method and instrument to be used in the field. Development of the confirmation sampling plan also depends on using a reliable standard deviation input for these measurements. This could be generated by repeated

measurements preferably 10 or more made using the field detection instruments in the same manner as they are proposed to be employed for this action. Such information is important so that all parties involved have a good understanding of the use of field radiation detectors for such purposes

Response to Comment No. 4

The Field Instrument for the Detection of Low Energy Radiation (FIDLER) will be the primary instrument used to determine when radionuclide-contaminated soils have been excavated to achieve local background activities. The FIDLER data cannot be converted to radionuclide-specific activity per unit mass. The FIDLER is a multi-channel analyzer with a set energy detection band that provides a gross indication (counts per minute [cpm]) of radiological contamination. It is not capable of discriminating gamma and x ray energies emitted by varying sources. Although the truck mounted, high purity germanium (HPGe) detection system (to be used in confirmation sampling/analysis) is capable of discriminating these energies and thereby identifying the radionuclide sources, an assumption of the depth of contamination is required to convert the total radionuclide-specific activities to activity per unit mass.

The primary objective of this ARA is to remove the radiological contaminated soils to achieve residual activity levels that are near local background levels. The hot spots have surface activities as measured by a FIDLER that are typically 2 to 100 times local background. As recommended, DOE will take 10 FIDLER readings on the local soils surrounding each hot spot to establish a mean and standard deviation for local background radiation. The mean reading plus 2 standard deviations (the 95th percentile of the local background activity measurements) will be used to define the local background activity at each hot spot and excavation will proceed until this activity is achieved within each excavation. Once excavation is completed as determined by the FIDLER, the HPGe will be used to gather radionuclide-specific total activities within the excavation and in the surrounding soil. The total activity values from these measurements will be compared to further assess achievement of the primary objective.

OTHER COMMENTS

Comment No. 1

Page 11 last paragraph It is stated here that unique ecosystems were not found at RFP during extensive biological studies This statement must be deleted since biological studies for all portions of the plant site have not been completed or submitted for agency review

Response to Comment No. 1

The sentence will be modified to state "Preliminary studies to date have not indicated the presence of unique ecosystems at RFP"

Comment No. 2

Page 15 paragraph 3 The second sentence in this paragraph does not make sense as written and should be revised or deleted

Response to Comment No. 2

The sentence has been revised as follows The uranium contamination at SS100193 and SS100293 is not at the immediate surface as the deeper composites have the higher activities

Comment No. 3

Page 17 Table 2-4 The radionuclide activity data presented in this table and in Figures 4 17 4 18 and 4-19 of the OU 1 RFI/RI Report raise the question of whether locations SS100193 SS100293 or SS100393 really need to be addressed through an accelerated response action The activities found in samples taken from location SS100393 are actually quite similar to those of the samples from surrounding locations Also as noted in EPA s previous comments regarding the Sampling and Analysis Plan some of the

*locations sampled in 1987 actually had higher activities than the three mentioned above
A better analysis of the health risks involved should help clarify which locations need
accelerated action*

Response to Comment No. 3

DOE agrees that the radionuclide activities in soil at SS100393 is similar to the surrounding soils. Nevertheless, the hot spot is targeted for removal. Because the soil is to be removed in 6-inch lifts, at least 6 inches of soil will be removed from this location. Further excavation will be dependent on the results of the FIDLER survey.

DOE has recently conducted a follow up FIDLER survey of the IHSS 119 1 area and have located two hot spots previously identified in a 1987 surface soil characterization study. The samples originally collected from these hot spots were identified as 881 16/17 and 881 18/19. The locations were staked and surveyed and the HPGe was used to quantify the radionuclide specific total activities. The FIDLER data will be presented in the Final PAM, and these hot spots will also be removed as part of this ARA. Please see EPA Major Concern Comment No. 2 for a discussion of risks posed by the uranium hot spots and the rationale for their removal.

Comment No. 4

*Page 20 paragraph 3 The OU 1 IM/IRA actually began collection and treatment of
groundwater in April 1992 not in August 1991 as stated here*

Response to Comment No. 4

The correction has been made.

Comment No. 5

Page 22 paragraph 2 The first sentence in this paragraph mentions the "revised 1994 IAG Until IAG renegotiations are completed no revised 1994 version exists and as such the sentence should be corrected

Response to Comment No. 5

The sentence has been revised to simply refer to the IAG

SECTION 3
RESPONSES TO COLORADO DEPARTMENT OF HEALTH COMMENTS

GENERAL COMMENTS

Comment No. 1

Completeness of Proposed Action Memorandum The proposed modification to the IAG describing Accelerated Response Actions lists several specific items that a Proposed Action Memorandum (PAM) must contain. The Division has reviewed these requirements and determined that this draft PAM currently does not adequately address several required items. The Division's findings and comments on each specific requirement are detailed below. All deficiencies identified must be corrected before the Division can consider this PAM to be complete.

Comment No. 1a

Brief Summary of the Data for the Site A summary of data for the site is presented in Section 2.4 Release or Threatened Release into the Environment of a Hazardous Substance Pollutant or Contaminant along with a discussion of the potential for radionuclide migration. This section partially satisfies the requirement for the PAM to include a brief summary of site data. The Division believes additional site data relevant to this action is available. Missing from this section is any discussion of data for metals at or near the OU 1 hot spots. This information is of particular interest since several metals were detected at elevated levels at or near the hot spot locations. A table reporting and summarizing complete analytical results for the four hot spot locations and nearby surficial soil and borehole sampling locations should also be included in the PAM.

Response to Comment No. 1a

Hot spot characterization data has been provided for all surface and subsurface soil constituents determined to be contaminants in the RFI/RI. These include plutonium, americium, uranium,

volatile organic compounds polychlorinated biphenyls and polynuclear aromatic hydrocarbons
Metals were not shown to be soil contaminants in the RFI/RI

Comment No. 1b

Explanation of the Proposed Action An explanation of the proposed action should be included in Section 1 0 Purpose of the PAM Section 1 0 currently touches on the administrative requirements for the hot spot removal action but does not explain what action is specifically being proposed A description of the proposed removal action is not presented until deep in the PAM specifically in Section 5 0 Alternative Accelerated Response Actions on page 24 of the PAM The description presented in Section 5 is very brief and lacks many details relevant to this action such as the expected size of the excavation and specific dust control measures to be utilized

Response to Comment No. 1b

As requested Section 1 will better describe the ARA and Section 5 will provide more details regarding the soil removal and dust control measures

Comment No. 1c

Waste Management Considerations Waste management considerations are discussed in Section 5 1 1 of the PAM The Division is pleased to see that a storage unit has been identified for this waste This section states that the excavated materials will be managed in accordance with Colorado Hazardous Waste Act (CHWA) requirements The PAM must include or reference the waste management requirements of the storage unit per the permit Additionally no DOE or CERCLA requirements for the management of radioactive waste or mixed waste are identified in the PAM Specific CHWA and other requirements applicable to waste management must be fully addressed in the PAM

Response to Comment No. 1c

Section 5 2 2 2, Institutional Controls discusses Applicable or Relevant and Appropriate Requirements (ARARs) This section will be expanded to present the specific regulations that are ARAR for the hot spot excavation, containerization, and storage These include CHWA requirements for use and management of containers radiation protection standards at 10 CFR 820 and 830 and other applicable DOE requirements e g in accordance with DOE Order 5820 2A (Radiological Waste Management) and the Rocky Flats Policy Manual (Policy 6 11, Serialized White or Black Drums or Waste Boxes), radioactive waste must be placed into proper storage within the same day of generation There are no CERCLA requirements aside from compliance with ARARs, for the management of radioactive or mixed wastes

Comment No. 1d

Brief Explanation of how the Proposed Action is Consistent with Long Term Remedial Action Objectives The consistency of this action with long term remedial action objectives is discussed in Section 5 2 1 1 Screening of Options In this section the PAM states that this action should be consistent with future long term clean up plans because it permanently reduces health risks and contaminant migration potential at OU 1 This discussion satisfies this PAM requirement however the Division recommends that this information be added to the introduction of the PAM

Response to Comment No. 1d

As requested a discussion of the consistency of this action with long term remedial action objectives will be added to the introduction

Comment No. 1e

Implementation Schedule and Completion Date for the Proposed Action Section 6 2 of the PAM very briefly discussed the schedule for this project The section states that the removal action is scheduled to begin September 20 1994 and continue for 10 working

days This section fails to list a completion date for the proposed action as specified in the proposed IAG language Additionally this schedule is inconsistent with information submitted to the Division supporting the cost estimate that showed 5 days mobilization and 5 days demobilization in addition to the 10 days removal activity for a total of 20 working days of field activities

Response to Comment No. 1e

Assuming the ARA begins September 20, 1994, as originally scheduled, 5 working days are allowed for mobilization followed by 10 working days for the hot spot removal sampling and waste transfer to permitted storage, and a final 2 working days are allowed for demobilization/decontamination The ARA is thus schedule to be completed by October 12 1994 This information will be provided in the Final PAM

Comment No. 1f

Identification of All ARARs Specifically Related to the Proposed Action In 5 2 2 2 Institutional Factors ARARs are identified for the removal action The ARARs identified are limited to federal ARARs practicable for this removal and Colorado ARARs relevant to this removal The ARARs identification is limited to broad citations of the Acts and regulations applicable to the removal This section does not meet the PAM requirement of "identifying all ARARs specifically related to the proposed action The Division believes that a detailed ARARs identification must be included in this PAM to meet the requirements of the proposed accelerated response action language

Response to Comment No. 1f

Please see response to CDH comment 1c

Comment No. 2

Project Costs At the request of the EPA a review of the projected cost of this removal action was presented to the Division staff at a meeting on August 3 1994 This comment is in response to both the information contained in the PAM and the supplemental cost information presented at the August 3 1994 meeting

The Division is shocked by the extremely high cost estimate that DOE has presented for what appears to be a simple removal action The resources that DOE has committed to this removal action are excessive unnecessary inefficient and wasteful of taxpayer money The Division fails to see how the DOE can claim that this removal is cost effective The extreme cost combined with the failure to consider the cost of other options does not support this conclusion In addition the cost of this action considered against the relatively small risk reduction raises questions as to whether the action should be taken at all

The Division requests specific justification for why this action costs \$65 000 per cubic yard of removed soil This justification must include rational and specific tasks for each of the 9 full time support personnel to the 4 personnel actually doing the removal during the soil removal phase of the project The Division recommends that the DOE critically review all aspects of this project and make all appropriate cost cuts before presenting such justification Cost saving recommendations are presented in the Division's comments below

Response to Comment No. 2

Please see response to EPA Major Comment No. 1 DOE will strive to reduce project costs without sacrificing compliance with ARARs and other Rocky Flats Environmental Technology Site requirements

Comment No. 3

Waste Characterization The Division was presented additional detailed cost estimates for this PAM at a meeting with the DOE EPA and EG&G staff on August 3 1994. Based on those cost estimates a significant portion of removal costs are associated with waste characterization. A meeting was held between the Division DOE and EG&G staff on August 4 1994 to review the waste characterization requirements for this hot spot removal action. During that meeting it was agreed that the extensive waste characterization proposed for this removal action is based on current waste acceptance criteria for the Nevada Test Site (NTS).

None of the waste characterization sampling proposed in this PAM is required by the Division for on site waste storage. The Division believes that sample results from the OU 1 RFI/RI investigation are sufficient to make a hazardous waste determination and adequately characterize the soils proposed to be excavated for on site waste storage.

The cost of collecting and analyzing waste characterization samples to meet current NTS waste acceptance requirements is over \$150 000 over 38% of the total project cost. The NTS is not currently accepting mixed waste or non-hazardous radioactive waste. There is no guarantee that current NTS waste acceptance criteria will be adequate when NTS reopens or begins accepting mixed waste. The risk of conducting unnecessary analysis or having to resample to meet revised waste acceptance criteria is high and can be avoided by delaying waste disposal sampling until a disposal site is truly available and waste acceptance criteria finalized. Further it is the Division's understanding that other options for the treatment or disposal of this waste are also being considered which could make the proposed waste characterization sampling useless.

Therefore the Division recommends that DOE remove the proposed waste characterization sampling and analysis from this removal action reducing the cost of the action by over \$150 000.

Response to Comment No. 3

As stated in Response to EPA Major Comment No 1, the cost for waste characterization will be removed from the project cost estimate. Furthermore, the PAM will be clear that the subject ARA does not include treatment and/or disposal of the containerized soils.

Comment No. 4

Prevention of Contaminant Dispersion Potential worker exposure to radionuclides in dust generated during excavation is one of the greatest hazards associated with this removal action. The PAM states that appropriate dust control measures to mitigate potential contaminant migration during excavation will be applied. This statement is not sufficient to ensure to the Division that all necessary measures for the protection of workers and prevention of contaminant migration will be implemented. The prevention of contaminant dispersion is addressed in the Final Plan for Prevention of Contaminant Dispersion February 1992 (PPCD). The Division requires that this approved primary IAG document be utilized in determining specific dust control measures for this action and referenced in the PAM. Additionally, the PAM must identify the specific dust suppression techniques, air monitoring instruments, and action/alarm levels determined through the PPCD methodology to be employed during this removal action.

Response to Comment No. 4

The Health and Safety Plan (HASP) for the hot spot removal identifies the monitoring and dust control measures that will be utilized during the excavation. These details will be provided in the Final PAM. They are consistent with the PPCD, which will be referenced accordingly.

Comment No. 5

Alternative Evaluation The Division was not aware that alternatives to the removal were being considered. Not enough information has been presented to adequately compare all of the alternatives presented. An incomplete alternatives analysis is of little value.

Specifically the relative costs of each alternative is missing The use of fences or other institutional actions to limit access to the hot spots until a final remedy is selected was not considered as an alternative in this analysis Alternatives were arbitrarily rejected because they could not be implemented in less than 6 months Failure to meet the implementation time frame for as an accelerated action should not preclude an otherwise superior action from being selected Alternatives should be considered on their technical merits The Division recommends that either a complete alternatives analysis be conducted and presented in the PAM or the proposed action be presented singularly as a presumptive remedy

Response to Comment No. 5

As suggested the Final PAM will not include an alternatives analysis but rather will present the proposed ARA as a presumptive remedy The language to modify the current IAG does not require an alternatives analysis for ARAs nor does EPA guidance for preparation of Action Memoranda for time-critical removal actions

SPECIFIC COMMENTS

Comment No. 1

Section 2 4 1 Page 14 The test states that the sample hole as SS100493 was terminated at 10 inches because a large rock was encountered The presence of a large rock raised several questions regarding the removal that are not addressed in the PAM Specifically is the rock big enough to cause concern during the removal? Have contingencies been developed for the removal and disposal of the contaminated rock? Is the rock too big to fit into a drum? Will the rock be broken in place before removal? Does the DOE expect to be able to decontaminate the rock?

Response to Comment No. 1

Field personnel who performed the original sampling at SS100493 indicated the rock is approximately 1 foot square and 3 to 4 inches in diameter. The rock can be easily removed by hand and placed into a drum. The rock may pose some treatment problems should the soils require treatment, but this is beyond the scope of the ARA.

Comment No. 2

Section 2.4.2.1 Page 15: The text in this section states that the immobility of plutonium and americium in the environment is a given. The Division does not agree with this hypothesis. It has been shown that both Pu and Am contaminants at the Los Alamos National Laboratory are mobile in the environment (Environ Sci Technol Vol 23 No 5 1989 page 496-502). Additionally, the PAM cites potential migration of radionuclides in the environment as rationale for this action.

Response to Comment No. 2

Regardless of what may be inferred about plutonium mobility in the ES&T article, extensive studies of plutonium mobility in OU2 soils indicate no appreciable vertical migration of the radionuclide, even during a 100-year, 1-hour duration simulated rainfall event. These data are directly relevant to OU1, as the soils at OU1 are not significantly different than those at OU2. The PAM citation of potential migration of radionuclides as a rationale for the ARA is in reference to erosion, not vertical migration due to other mechanisms.

Comment No. 3

Section 5.2.2.3 Page 28: The text states that this cost estimate does not include any costs for treatment or disposal of the soils. This statement is not accurate. The waste characterization sampling detailed in the Sampling and Analysis Plan is directly attributed to waste acceptance criteria at the NTS, a future waste disposal option. Specifically, costs directly attributed to waste disposal include sample collection and

packaging (\$21 149) lab confirmation and data validations (\$123 525) incorporate data into RFEDS (\$3 337) and data quality review (\$2 055) Therefore \$150 066 or over 38% of the estimated \$390 000 project costs are actually waste disposal costs The Division s recommendation on the elimination of this waste characterization sampling is discussed in the Division s general comments above

Response to Comment No. 3

DOE agrees these costs should be eliminated from the project costs Please see our response to EPA Major Concern Comment No 1

Comment No. 4

Section 6 1 Page 28 The Division does not believe that sufficient information has been presented to support the DOE s finding that this action is cost effective The Division requests that the rationale for finding this project to be cost effective and the DOE s definition or criteria of cost effective projects be briefly summarized in this PAM

Response to Comment No. 4

References to the ARA being cost effective have been eliminated from the PAM Cost effectiveness is not a criteria for selection and implementation of an ARA Please see our response to EPA Major Concern Comment No 1

Comment No. 5

Section 8 0 Page 29 Although this document was prepared by a DOE subcontractor it is a DOE document This document is a proposed action not a recommended action

Response to Comment No. 5

We stand corrected The sentence has been modified accordingly